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**BAG FOR STORING AND DISPENSING GRANULAR, POWDERY OR  
LIQUID PRODUCTS AND PRODUCTION METHOD THEREOF**

5 FIELD OF THE INVENTION

The invention described hereby refers to a pouch placed in a carton, for keeping and distributing seed-like, powder-like or liquid goods, and to the manufacturing procedure.

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The carton is a folding carton made preferably from a blank of cardboard, folded along creasing lines and glued on its flaps' gluing areas so forming a prismatic rectangular carton provided with a pour spout. The hermetic pouch made of paper or plastic or plastic/metallic material is placed on the carton before it is folded.

15 To open the carton and pour its contents, it is not necessary to cut the pouch's upper side as access is gained through the pour spout, and it is through the pour spout that the contents are served.

20 BACKGROUND ART

Several cartons with rectangular prismatic form, hermetic closure and water-proof interior for distributing seed-like, powder-like or liquid goods are already present on the market. In order to improve conservation of the products these are  
25 usually enclosed in hermetic pouches made of paper or plastic or plastic/metallic material. Then the carton's main role is to protect the pouch, to make it easier to handle thanks to the carton's rigidity and to offer its faces with a surface suitable for illustrating with the product's name, brand, features, attractive pictures, etc. A sole pouch does not have these advantages, but it makes for better conservation of the  
30 contents as it offers an acceptable hermetic condition even after the first time it has been opened, if the consumer folds it carefully and fixes it with a clip.

Thus, seed-like and powder-like goods are usually marketed in pouches contained in cartons like those described above. However, the main disadvantage, if one does not consider the difficulty of manufacturing them and filling them, is for the consumer: The first time, he must open the carton top, and open or cut the pouch.

5 Then, after serving he must close the pouch, folding the mouth carefully and fixing the closure for good conservation.

Other recipients are made of cardboard-plastic-metal laminated complexes and have a sealed or glued spout made of a different material, that helps to pour the content, and which can be closed again with a plug or something similar. This kind

10 of cartons are currently used only for liquids.

However, cartons which contain pouches with a pouring system consisting of a pour spout built in the carton and in the pouch, easy to open and use and easy to

15 close without any special operations and without any clips or suchlike are unknown on the market. A further advantage would be that it can be used for both seed-like and powder-like goods, but also for liquids. It would also be convenient for it to be manufactured with just a blank and a pouch without gluing or sealing any pre-formed parts such as spouts or plugs.

20 The invention described in this memoir refers to a pouch, including the option of the "pouch without a bottom", that is, when the bottom of the pouch is only sealed within the filling machine immediately before the pouch is filled, to form a prismatic rectangular carton with the above mentioned advantages.

25 Though this pouch could be adapted to any carton similar to the existing ones, it is especially suitable for being placed in a carton with a distributing system such as a pour spout, made from the same blank the carton is made from. Precisely, the preferred embodiment described later for the pouch and its manufacturing procedure

30 is that which is suitable for its production with a carton provided with a pour spout as described in patent application PCT ES/0000200190, "PROCEDIMIENTO DE FABRICACION Y CAJA PERFECCIONADA CON PICO VERTEDOR".

This application describes a manufacturing process and a folding carton made from a blank, preferably of cardboard, folded along some creasing lines and glued on some flap areas, producing a prismatic rectangular box or carton provided with a pour spout. The innovation of this invention is founded on the fact that the pour spout is constructed in the blank's waste area next to an upper short flap, instead of adding a supplementary side to obtain it, and that the constructing process may be carried out in high speed, automatic, folder-gluer machines.

The pouch – which is the object of this invention, is constructed in such a way that takes advantage of this spout, using it as a seal before the first opening, as a pour spout, and as a hermetic closing device until the next opening.

Furthermore, the manufacturing process is described with the pour spout box, being glued to it at some points.

#### SUMMARY OF THE INVENTION

The present invention refers to a pouch to be placed inside a prismatic rectangular carton, specially for cartons provided with a distributing system such as a pour spout, made from the same blank that the carton is made from (as described in patent application PCT ES/0000200190 for instance).

The invention described in that application is a manufacturing procedure and a box provided with a pour spout, consisting in a way to produce a folding carton made from a blank, preferably of cardboard, folded along some creasing lines, and glued on some gluing areas, thus creating a prismatic rectangular carton provided with a pour spout. This carton offers some advantages if we compare it to other cartons used to transport and distribute goods.

Some cartons have no system for distributing their contents.

Some have a closing and pouring system consisting of a spout made either from the same cardboard that the carton is made from, or of a plastic or metallic material which is glued to the carton during the manufacturing process.

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But no carton is known to be provided with a pouring system constructed from a blank with all the advantages derived from its being easily transported, stored and erected for filling, as the one described in the aforementioned PCT application, which describes the pour spout box and the system applied to manufacture it from a single cardboard blank.

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The current advantages offered by this carton are improved now by adding a hermetic pouch made of either paper, or plastic or plastic-metallic material (for instance the ones used for breakfast cereals) to the inside. The innovative aspect of this pouch is that, instead of opening the upper side of the carton to reach the hermetic pouch, access to the pouch is gained through the pour spout, and the pouch is not loose inside the carton, but is stuck to it at a series of glue points.

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This pouch could also be placed inside a carton without a pour spout, with just a window without side-walls for example, or inside a carton provided with a pouring system made by adding an inserted part, but there would be fewer advantages. Most pour spouts - those constructed on supplementary sides - are obtained when the blank is folded, whereas the one described here is already formed while the blank is still flat. That is the reason why the pouch can be glued to the carton described in the aforementioned PCT, while in other cases this would not be possible.

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To produce this pouch, when the cardboard blank is placed on the folder-gluer machine, after the pour spout constructing operations have been performed and before the longitudinal creasing lines are folded, we glue some areas and we stick the folded pouch obtained from a folded pouch roll on them. At this stage we obtain a folded carton containing a folded pouch, which, thanks to the gluing points,

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accompanies the carton's movements, so that when the carton is erected and obtains its rectangular prismatic shape the pouch inside will also take on approximately the same shape.

5 After filling the pouch with its contents, besides the upper horizontal sealing line, a double welding line must be sealed, which can be straight, wavy or V-shaped, the shape does not matter, and at least one vertical or inclined cut must be made, with the purpose of getting one of the pouch's upper corners, - precisely the one that has been stuck to the carton's pour spout-, to move independently of the pouch. The  
10 double sealing and the cut, whatever their shapes might be, will form a pour pipe glued to the carton's pour spout. Finally, the closing of the carton is completed.

Thus, when the end user opens the carton he finds a flexible sealed pour pipe (which he will have to cut) which overreaches the carton's pour spout's border. If he  
15 cuts it in such a way that the pipe's border still overreaches the border of the carton's spout, when the latter is closed back, it will trap the flexible pipe and so it will provide the remaining contents with an acceptable hermetic condition, even after the first opening and without any need for clips or suchlike.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

In order to better understand the object of the present invention, this memoir includes a practical example of it, with some drawings.

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Figure 1 shows a blank of a pour spout box as described in PCT ES/0000200190 (it refers to figure 1 of the aforementioned PCT).

Figure 2 shows the evolution of Figure 1 with the spout area already folded  
30 and glued (it refers to Figure 4 of the aforementioned PCT).

Figure3 shows the box already erected with the pour spout opened and ready to serve the contents (it refers to Figure 4 of the aforementioned PCT).

5      Figure 4 shows Figure 2 with the addition of the gluing areas where the pouch will be stuck.

Figure 5 shows Figure 4 with the addition of the pouch positioned on the right area to be glued to the blank.

10      Figure 6 shows the pouch with the sealing lines and the cut that creates the pour pipe.

Figure 7 shows the same pouch with its pour pipe separated from the main body, showing what it would look like when the carton's spout is pulled out.

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The above mentioned figures show the following details:  
(marks 1 to 15 refer to Figures 1 to 3 of PCT ES/0000200190).

- |    |     |  |
|----|-----|--|
|    | 1.  | Side faces folding line (3).                       |
| 20 | 2.  | Window that will form the pour spout's front side. |
|    | 3.  | Pour spout's side walls                            |
|    | 4.  | Folding line.                                      |
|    | 5.  | Side wall's (3) lid to be glued on the window (2)  |
|    | 6.  | Side wall's (3) lid to be glued on the window (2)  |
| 25 | 7.  | Lid to be glued.                                   |
|    | 8.  | Lid to be glued.                                   |
|    | 9.  | Carton's side wall                                 |
|    | 10. | Carton's front wall                                |
|    | 11. | Half cut line.                                     |
| 30 | 12. | Bottom flaps.                                      |
|    | 13. | Longitudinal gluing flap.                          |
|    | 14. | Half cut finger-lid.                               |

15. Upper flaps.

(Marks 20 to 30 refer to figures 3 to 6)

- 5           20. Pouch.
21. Glue area corresponding to the pour pipe.
- 21a. Pouch's area where pour pipe is formed
22. Lower gluing area of the carton's front wall.
- 22a. Pouch's area corresponding to carton's area 22
- 10          23. Gluing areas of the carton's right wall.
24. Gluing areas of the carton's left wall
- 24a. Pouch area corresponding to carton area 24.
26. Sealing lines that form the pouch.
27. Cut line to form the pour pipe (30).
- 15          28. Sealing line after pouch is filled.
- 28a,b. Sealing lines to form the pour pipe (30).
29. Pipe's sealing line to be cut when opening.
30. Pour pipe.

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#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following lines describe an example of a preferred embodiment which must be interpreted in its widest sense and not be understood in a limited sense.

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As stated earlier, the present invention refers to a pouch to be integrated inside cartons, and particularly, inside cartons provided with a distributing system, such as a pour spout, made from the same blank the carton is made from (for instance as the carton described in the patent application PCT ES/0000200190).

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This carton is constructed from a sole blank, like that shown in Figure 1, which corresponds to figure 1 of the aforementioned PCT. This blank has several

creasing lines which constitute the carton's folding lines, its four sides (9,10), its bottom flaps (12), and its top flaps(15). In this blank, one of the upper short flaps is prolonged by an area which will form the pour spout, which contains,- as shown in the figures-, a couple of lids (5-7, 6-8), which end in an "ear-shaped" area (3), with a  
5 folding line (1) separating lids (5, 6) and ears (3). One of the carton's side panels (9) contains a window which will coincide with the area contained between the lids' (5, 6) borders, after having been folded along the folding line (4).

The manufacturing procedure goes on to fold the spout forming shape along  
10 the folding line (4), sticking the lids (7, 8) to the side panel (9) above the window and sticking the lids (5, 6) well fitted into the window (2). The result is as shown in Figure 2 where the striped areas represent stuck areas. Besides, while dye cutting the blank, a finger-lid (14) has been half cut on the window's (2) upper border, so that it might be torn by pushing. This finger-lid allows the end user to pull out the pour  
15 spout's window wall (2), thus causing the half cut lines (11) to be torn, and the pour spout to be opened and formed, as shown in Figure 3 (corresponding to the Figure 4 of the aforementioned PCT application). Further details of the carton's manufacturing procedure are available in the aforementioned PCT application.

20 The improvement offered by this invention is a pouch which is provided with a pour pipe formed just by cutting and sealing, without any insertions, and whose better application is to be produced together with the above described pour spout carton, thus obtaining the aforementioned advantages of better protection for the contents, easy opening and distributing, gentle and reasonably hermetic closing after  
25 first opening, easy and cheap production and good recycling properties.

The first step to produce these cartons is done on the folder-gluer machine. After the machine has performed the folding and gluing operations that form the carton's pour spout (state shown in Figure 2), glue is laid on some areas (21, 22, 23,  
30 24) as shown in Figure 4.



Then a pouch is positioned in the way shown in Figure 4, and the blank runs further being folded and glued longitudinally.

To perform both operations, a window-patcher unit must be inserted within a modular folder-gluer. The window-patcher unit lays the glue on the blank using  
5 clichés or guns, and then lays the pouch on the right position, obtaining it from a pouch roll which is cut in a cutting cylinder and fixed onto it by suction.

Thus we obtain a folded carton with a folded pouch stuck inside, which will  
10 accompany the carton's movements, and thus when the folded carton is erected and becomes a rectangular prism, the pouch glued inside will also become approximately a rectangular prism.

The pouch's filling and closing procedure is also innovative. At this stage the  
15 pouch is made from a leaf of paper or plastic or metallic-plastic material (Figure 6) with its right border being a fold, its left and bottom borders being sealed and the upper border being open. Methods known in the state of the art suggest filling the pouch and closing it by means of a horizontal welding line that goes from one corner to the other so that the consumer has to cut that upper sealing to access the contents.

20 In this pouch and this invention this is different. Once the pouch is glued to the carton in areas (21a, 22a, 24a in figure 6) and its corresponding areas on the opposite side of the pouch, and once it has followed the carton's opening movement becoming itself a rectangular prism, the pouch is filled with whatever goods it might  
25 contain. But besides the horizontal sealing of the upper border (28), a double sealing line (28a, 28b) and a cut (27) are made vertically. The sealing lines (26) might have been previously made by the pouch manufacturer, and the 28, 28a, 28b and 29 are made after the pouch has been filled, in order to close it. Among these, the horizontals (28 and 29) correspond to the usual sealing closure, and the double  
30 vertical sealing (28a, 28b) and the vertical cut in the middle of them (27) aim to create a flexible pour pipe (30) which is stuck to the inside of the pour spout, and will thus accompany it when it is pulled out as shown in Figure 7. To obtain this

result, the gluing area 21a must be positioned within the flexible pour pipe and must correspond to the carton's gluing area 21, which will extend itself along the front side and the side walls or "ears" of the pour spout.

5 It is recommended that the pouch's perimeter should slightly exceed the container carton, though this excess might be not apparent, by using pouches provided with bellow-like longitudinal folds, and thus when the flexible pipe follows the pour spout's movement when it is pulled out, tensions between glued areas will be avoided.

10 Among the existing pouch sealing machines, none performs the vertical sealing and cutting necessary to produce this invention, as this has not been needed so far, but no special difficulties are foreseen in adapting existing machines to perform these new operations.

15 When the end user opens the carton by pulling out the window (2) aided by the finger-lid (14), he finds a sealed flexible pipe (30) that overreaches the spout's border. He will have to cut its sealed border (29) to pour the pouch's contents. If, even after the cut, the pipe's border overreaches the spout's border, he will trap the  
20 flexible pipe when he closes back the pour spout, and thus the contents will benefit from an acceptable insulation even after the first opening and without needing clips or suchlike.

25 Finally it must be remarked once again that this pouch could also be placed on a carton without a pour spout, provided just with a pour window with no side walls, or provided with other pouring systems.

The preceding explanations illustrate an example of a making mode, but this  
30 does not mean that the protection provided by the patent does not cover any other product or any other manufacturing mode, which essentially follows the spirit of the invention.